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EXAMINER

ROGERS, DAVID A

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WAYNE EDWARD BEIMESCH

Appeal No. 2009-0501
Application 09/806,274
Technology Center 1700

Decided:¹ January 30, 2009

Before BRADLEY R. GARRIS, CHARLES F. WARREN, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

DECISION ON APPEAL

Applicant appeals to the Board from the decision of the Primary Examiner finally rejecting claims 1 through 7 in the Office Action mailed November 16, 2006. 35 U.S.C. §§ 6 and 134(a) (2002); 37 C.F.R.

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date

§ 41.31(a) (2007).

We affirm the decision of the Primary Examiner.

Claim 1 illustrates Appellant's invention of a method for measuring volatile organic compounds of a material produced in a process system, and is representative of the claims on appeal:

1. A method for measuring volatile organic compounds of a material produced in a process system having emissions, said method comprising:

(a) disposing an amount of said material in an enclosed bag having a sealable opening such that there is headspace above said material in said enclosed bag;

(b) storing said enclosed bag containing said solid material at the mean exit temperature of said emissions of said system such that equilibrium between said material and said headspace is reached; and

(c) introducing samples from said headspace into a flame ionization detector which thereby measures said volatile organic compounds of said material.

The Examiner relies upon the evidence in these references (Ans. 3):²

Robbins	5,140,845	Aug. 25, 1992
Legros	5,809,664	Sep. 22, 1998

Masterton, Chemical Principles, pp. 322-28 (6th ed., New York, CBS College Publishing. 1985).

Compilation of Air Pollutant Emission Factors, AP-42, Sec. 6.8 and 7.1, pp. 6.8-1 – 6.8-7 and 7.1-1 – 7.1-102 (Environmental Protection Agency 1993 and 1997) (EPA Method AP-42).

shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

² We consider these documents: Examiner's Answer mailed November 1, 2007; Substitute Appeal Brief filed December 27, 2007; Supplemental Examiner's Answer mailed February 14, 2008; and Reply Brief filed July 14, 2008.

Appellant requests review of the ground of rejection under 35 U.S.C. § 103(a) advanced on appeal by the Examiner: claims 1 through 7 as unpatentable over Robbins, Legros, Masterton, and EPA Method AP-42.³ Sub. App. Br. 3. The Examiner does not dispute Appellant's statement of the ground of rejection, but states the prior art relied on as including the prior art admitted by Appellant at page 1 of the Specification. Ans. 2, 3, and 4.

Appellant principally argues the ground of rejection on the basis of independent claim 1, and adds other arguments with respect to the dependent claims. Sub. App. Br, e.g., 11-12. Thus, we decide this appeal based on claim 1 and on dependent claims 2 through 7 to the extent argued in the Briefs. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

The principal issue in this appeal is whether Appellant has shown that the combined teachings of of the prior art admitted by Appellant, Robbins, Legros, Masterton, and EPA Method AP-42 would not have led one of ordinary skill in this art to select the mean exit temperature of emissions of a process system to store a bag containing solid material produced in the process system until equilibrium between the material and the headspace in the bag is reached, as required by claim 1.

The plain language of independent claim 1 specifies “[a] method for measuring volatile organic compounds of a material produced in a process system having emissions,” which method comprises at least specified steps

³ The Examiner withdrew the ground of rejection of claims 1 through 3 and 6 under 35 U.S.C. § 101. Ans. 3.

(a) through (c), wherein the second step (b) specifies “storing said enclosed bag containing said material at the mean exit temperature of said emissions of said system such that equilibrium between said material and said headspace is reached.” We determine that the claimed method measures the volatile organic compounds (VOC) of any “material” that is “produced in” any “process system having” VOC emissions, wherein the “material” produced in the process system can contain VOCs. Thus, “a material” can include any intermediate or final “product” that is produced by “a process system,” including any unit operation within a process system, such as, for example, a fluid bed dryer in a process system producing granular detergent products. *See* Spec. 3, ll. 12-20. The process system must be one in which “the mean exit temperature of said emissions of said system” can be determined in order to establish the temperature at which the “enclosed bag containing said material” is stored, as specified in claim 1.

We find Robbins acknowledges that the so-called “[h]eadspace sampling techniques” for testing “a consistent volume or weight of ground water or soil mixed with water in a container, sealing the container, agitating, allowing time to permit volatile constituents to be released into the air headspace of the container, and then using a detector to measure the volatile constituent in the headspace” as applied to leakage of material around “storage tanks,” was known. Robbins col. 1, ll. 48-58. We find Robbins would have disclosed to one of ordinary skill in this art improvements on that process with respect to leakage from “storage tanks,” including the use of a flame ionization detector (FID) to measure the volatile contaminates, that is, VOCs, in the water or soil mixed with water. Robbins,

e.g., cols. 1-4. Robbins teaches that after sealing the bag, “[w]ith time, the constituent will volatilize into the headspace” of the bag, and the effect of, among other things, temperature with respect to “an equilibrium concentration” of volatile contaminants in the “headspace.” Robbins col. 4, l. 55 to col. 5, l. 13.

We find Legros would have disclosed to one of ordinary skill in this art, as illustrated in the embodiment depicted in Figure 1, spout-fluid bed dryer 10, which can be maintained at about 120°C, wherein slurry 65 of material to be dried is supplied to packing 15 in drying chamber 11 through spray nozzles 17 and hot air is supplied to chamber 11 through pipe line 28. Legros, e.g., col. 2, ll. 14-26, and col. 3, l. 52 to col. 4, l. 40. The flow of slurry 65 is modulated based on the temperature of chamber 11 which is measured by thermocouples 64. Legros col. 4, ll. 43-45. The hot air supplied can be at a temperature of around 400°C. Legros col. 5, l. 29-32. “The air and vapor mixture and elutriated particles rise up with the air current and leave the drying chamber from top port 14, and are directed to a cyclone 20 wherein the entrained dry particles are separated from the gas stream and collected.” Legros col. 4, ll. 50-54. “Effluent air and vapor steam leaves the cyclone from top port 25 and are convected to an incinerator chamber 30 . . . to have the VOCs and odors destroyed.” Legros col. 4, ll. 54-59. “The proper evaporation of the slurry in the drying chamber 11 is monitored by regulating the feeding rate of the slurry based on temperature within the particle layers of the packing 15 and the top freeboard region by using a series of thermocouples.” Legros col. 4, l. 65 to col. 5, l. 2.

EPA Method AP-42 would have evinced that spray-dried detergents could be manufactured by a process in which a slurry is supplied through nozzles into a vertical spray drying tower which has a drying stream of hot air of from 315 to 400°C (600 to 750°F). EPA Method AP-42 6.8-3. The exhaust air from the spray drying tower contains, among other things, “organics vaporized in the higher temperature zones of the tower.” EPA Method AP-42 6.8-3. The exhaust air from the spray drying tower contains, among other things, “organics vaporized in the higher temperature zones of the tower.” EPA Method AP-42 6.8-3. VOCs “may be emitted when the slurry contains organic materials with low vapor pressure,” and “[t]he amount vaporized depends on many variables such as tower temperature and the volatility of organics used in the slurry.” EPA Method AP-42 6.8-6. “[O]rganic emissions are influenced by granular temperature and moisture at the end of drying, temperature profiles in the dryer, and formulation of the slurry.” EPA Method AP-42 6.8-6. “[T]ower production rate may be reduced thereby reducing air inlet temperature and exhaust temperature . . . [which] will also reduce organic emissions.” EPA Method AP-42 6.8-6.

We agree with the Examiner’s finding that Appellant admits in the Specification that, among other things, VOC measurements are used to “monitor VOC emissions of virtually every unit operation in every manufacturing facility.” Spec. 1, ll. 7-22.

A discussion of Masterton is not necessary to our decision.

Upon reconsideration of the record as a whole in light of Appellant’s contentions, we are of the opinion that Appellant has not successfully established that the combined teachings of the prior art admitted by

Appellant, Robbins, Legros, Masterton, and EPA Method AP-42 would not have led one of ordinary skill in this art to select the mean exit temperature of emissions of a process system to store a bag containing solid material produced in the process system until equilibrium between the material and the headspace in the bag is reached as required by claim 1. In this respect, we agree with Appellant that none of the cited references individually teach or suggest the claim limitation of storing the bag containing the material produced in a process system at the mean exit temperature of emissions from that system as claimed. Sub. App. Br. 7-8. However, we disagree with Appellant's contentions that the combined teachings of the admitted prior art, Robbins, Legros, and EPA Method AP-42 would not have disclosed the claimed method for measuring VOCs of a material produced in a process system including this limitation to one of ordinary skill in this art. Sub. App. Br. 8-12; Reply Br. .*See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-41 (2007) *quoting In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[A]nalysis [of whether the subject matter of a claim would have been obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)((“[T]he test [for obviousness] is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”); *In re Sovish*, 769 F.2d 738, 743 (Fed. Cir. 1985) (skill is presumed on the part of one of ordinary skill in the art); *In re Bozek*, 416 F.2d 1385, 1390 (CCPA 1969) (“Having established that this knowledge was in the art, the examiner could then

properly rely, as put forth by the solicitor, on a conclusion of obviousness ‘from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference.’”); *see also In re O’Farrell*, 853 F.2d 894, 903-04 (Fed. Cir. 1988) (“For obviousness under § 103, all that is required is a reasonable expectation of success.” (citations omitted)).

As Appellant points out, in the prior decision entered in this Application,⁴ we determined “one of ordinary skill in this art would have reasonably inferred from Robbins that the equilibrium temperature [for storage of the bag containing a sample] can be the ambient temperature of the area around the ‘storage tanks’ where the ground water or soil mixed with water was taken, or lab room temperature,⁵ and not that ‘the mean exit temperature of said emissions of said system’ used to produce ‘a material’ is a result effective variable to determine the VOCs content of that product ‘material.’” Decision at 6; *see* Sub. App. Br., e.g., 9-10; Reply Br. 6. Appellant now contends that neither EPA Method AP-42 nor Legros teaches or suggests that the sample bag taught by Robbins should be stored at the mean exit temperature of emissions of the process system. Sub. App. Br. 7-8; Reply Br. 6-8.

⁴ Decision in Appeal No. 2004-0829 (Decision) entered March 19, 2004.

⁵ It is well settled that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom, *see In re Fritch*, 972 F.2d 1260, 1264-65 (Fed. Cir. 1992); *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968), presuming skill on the part of this person. *Sovish*, 769 F.2d at 743.

In this respect, Appellant contends the term “tower temperature” used with respect to the spray drying tower in EPA Method AP-42 at 6.8-6, has “[t]he plain meaning . . . [of] the internal temperature of the Spray Drying Tower,” and thus, this reference “at most suggests using the temperature that is the same as” the “tower temperature” for storing the bag containing the material produced in the process system. Sub. App. Br. 8-9; *see also* Reply Br. 7. Appellant contends “[b]ecause EPA Method AP-42 states that the amount of vaporized VOC depends on the tower temperature, one of ordinary skill in the art may reasonably conclude from reading EPA Method AP-42 that it is desirable to store the bag at the tower temperature or at least at the temperature of the site where the sample is taken,” and “[n]one of the references teach or suggest taking the solid sample from the emissions.” Sub. App. Br. 9. Appellant contends that Legros teaches “measuring the temperature at certain locations within the system” which does not mean “that a particular temperature, e.g., the mean exit temperature of the emission of the system in [Legros] is measured.” Reply Br. 7. Thus, Appellant argues the combined teachings of the references “at most teach storing the bag with samples at the same temperature as the fluid bed dryer, rather than at the mean exit temperature of the emission” of the system as claimed. Sub. App. Br. 9-10; Reply Br. 8. In other words, “Appellant is not disputing the notion that there are more than one locations in the process system where the temperature may be measured,” but “[m]erely because these temperatures are measurable does not mean that one would be motivated to use” the mean exit temperature of VOC emissions of the process system as claimed. Sub. App. Br. 10.

We determine that Appellant's position does not account for the disclosure in EPA Method AP-42 that VOCs are influenced by the temperature and moisture of the detergent granules at the end of drying as well as the temperature profile of the dryer, and the disclosure in Legros that material produced in a fluid bed dryer having a temperature profile, can be separated from other emissions, including VOCs, on exiting the dryer. Indeed, both EPA Method AP-42 and Legros disclose that the temperature profile of the dryer affects the amount of VOCs emitted.

We are of the opinion EPA Method AP-42 and Legros would have disclosed to one of ordinary skill in this art that the dryer temperature profile can include the mean exit temperature of the dryer emissions, wherein the emissions can contain particles that are produced in the dryer and are separated therefrom. Thus, on this record, while we agree with Appellants that one of ordinary skill in this art can select any temperature from the dryer temperature profile to store a sample of the particles obtain from the dryer in using the headspace sampling technique as modified by Robbins to determine the VOC content of the particles, we are nonetheless of the view that EPA Method AP-42 and Legros would have led this person to use the mean exit temperature of the emissions of the dryer where the sample of material can be collected for that purpose. *See, e.g., KSR*, 127 S. Ct. at 1740-41; *Keller*, 642 F.2d at 425; *Sovish*, 769 F.2d at 743; *Bozek*, 416 F.2d at 1390; *see also O'Farrell*, 853 F.2d at 903-04.

Turning now to the dependent claims, we find that none of claims 2 through 7 are argued with specificity, and indeed, Appellant merely cites the limitation set forth in each claim. Sub. App. Br. 11-12. For example,

Appellant contends with respect to claim 2, that the references do not teach a process which uses a fluid bed dryer and the other method limitations of claim 1 even though Appellant acknowledges that Legros discloses such a dryer. Sub. App. Br., e.g., 7.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teaching of the prior art admitted by Appellant, Robbins, Legros, Masterton, and EPA Method AP-42 with Appellant's countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 1 through 7 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

The Primary Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

PL Initial:
sld

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